

Fig.1

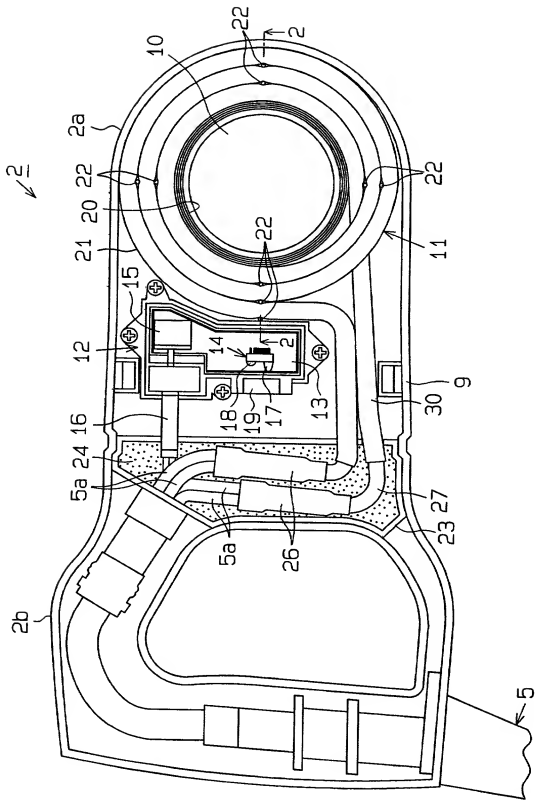


Fig.2

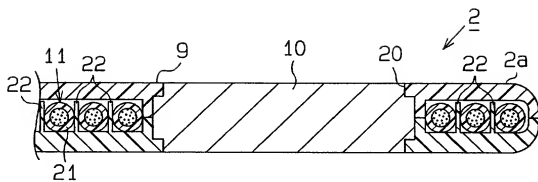


Fig.3 (a)

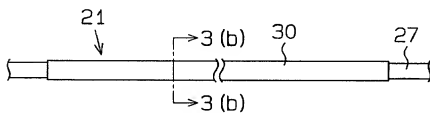


Fig.3 (b)

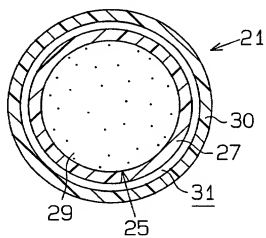
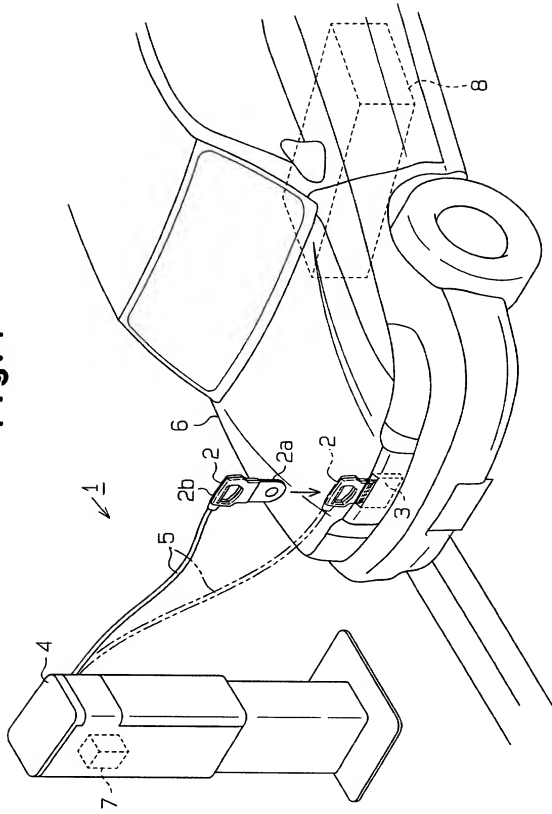


Fig.4



The figure illustrates the proposed mechanism for the formation of the C-H bond in the reaction of 1,2-dichloroethane with hydrogen sulfide. It shows two competing pathways starting from 1,2-dichloroethane ($\text{CH}_3\text{CH}_2\text{Cl}_2$) and hydrogen sulfide (H_2S).
 - **Pathway A:** Proceeds through a transition state $[\text{TS}]$ where one chlorine atom is being eliminated as HCl , resulting in chloroethane ($\text{CH}_3\text{CH}_2\text{Cl}$).
 - **Pathway B:** Proceeds through a transition state $[\text{TS}']$ where a hydrogen atom is being transferred from H_2S to the carbon atom, also resulting in chloroethane ($\text{CH}_3\text{CH}_2\text{Cl}$) and regenerating H_2S .

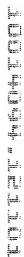
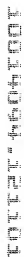
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Fig.7 (Prior Art)

